

POWERED BY **Dialog****BEST AVAILABLE COPY****NONAQUEOUS ELECTROLYTE SECONDARY BATTERY (2000-021442****Publication Number:** JP 2000021442 A) , January 21, 2000**Inventors:**

- IWASE TOSHIICHI
- MAEJIMA TOSHIKAZU
- IGUCHI TOMOHIRO

**Applicants**

- SHIN KOBE ELECTRIC MACH CO LTD

**Application Number:** 10-185147 (JP 98185147) , June 30, 1998**International Class:**

- H01M-010/40

**Abstract:**

**PROBLEM TO BE SOLVED:** To improve the high temperature service life characteristic of a secondary battery by using  $\text{LiMn}_2\text{O}_4$  of a spinel structure as a positive electrode active material, using a carbon material as a negative electrode, and using an organic solvent containing lithium salt and a vinylen carbonate or oligoethylene oxypolyphosphazene as a nonaqueous electrolyte.

**SOLUTION:** A nonaqueous electrolyte secondary battery is obtained by using a positive electrode using  $\text{Mn}_2\text{O}_4$  powder, having a spinel structure as a positive electrode active material, a negative electrode using a carbon material and a nonaqueous electrolyte by dissolving lithium salt of one kind of  $\text{LiPF}_6$  and  $\text{LiBF}_4$  in an organic solvent. One kind of a vinylen carbonate and oligoethylene oxypolyphosphazene is also included by 0.1 to 10 wt.% in this electrolyte. A ethylen carbonate, a propylene carbonate, a dimethyl or diethyle carbonate, a methyl ethyle carbonate, 1,2-dimethoxyethane, a methyl propylene carbonate,  $\gamma$ -butyrolactone, methyl propionate and ethyl propionate and the like are desirable as the organic solvent. COPYRIGHT: (C)2000,JPO

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